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(54) OPTICAL FIBER
SENSOR FOR DETECTING
DISPLACEMENT
QUANTITY

(57) Abstract:

PURPOSE: To shorten the length of an optical fiber sensor and to realize its miniaturization by using a reflecting mirror in an optical path between a light emitting part and a light receiving part, and using one piece of optical fiber for both light emitting use and light receiving use.

CONSTITUTION: A light beam which is emitted from a light emitting part 1 is divided into two by a half mirror 2, and some light beams travel straight, condensed by a lens 6, pass through an optical fiber 7 and go to parallel rays from a lens 8, reflected by a reflecting mirror 9 and travel in reverse, reflected by the half mirror 2 and reach a photodetector 5 and the light quantity is detected. On the other hand, a part of the light beams from the light emitting part 1 is reflected by the half mirror 2, and by a photodetector 3 and a control circuit 4, the light emission quantity of the light emitting part 1 is controlled to keep constant. Between the lens 3 and the reflecting mirror 9, a light shielding plate 10 which is fixed to an object whose displacement quantity is to be detected is provided, and in accordance with the displacement quantity of the object, the light shielding plate 10 is displaced in the direction as indicated with an arrow Y and the light quantity is varied. Accordingly, by detecting the reflected light quantity by the photodetector 5, the displacement of the object can be detected.

